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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,606	03/30/2004	Frank J. Dunn	dunn0404div	3189
23580	7590	06/27/2005	EXAMINER	
MESMER & DELEAULT, PLLC 41 BROOK STREET MANCHESTER, NH 03104			MARKOFF, ALEXANDER	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,606

Applicant(s)

DUNN, FRANK J.

Examiner

Alexander Markoff

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/30/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the state of the prior art admitted by applicants in the specification (Description of the Prior Art) in view of Carlson et al (US Patent NO 6,083,323).

The state of the prior art admitted by the applicants (PA) teaches that in conventional bell jar epitaxial deposition apparatus silicon deposits are removed from internal parts of the chamber during a cleaning cycle by a reactive gas. The PA further teaches that the walls of the bell jar are not cleaned by the reactive gas, because they kept at the temperature, which is not sufficient for cleaning, by the air flow. The referenced air flow is used to cool the walls during deposition to reduce contamination of the walls.

Carlson et al teach that such problem was known for similar deposition apparatuses. The temperature of the wall in apparatus of Carlson et al is controlled by the same method as in the bell jar apparatus of the PA – by airflow circulating through a plenum surrounding the deposition chamber. Carlson et al teach to control airflow during different processes to enable regulation of the wall temperature at required range. Carlson et al further teach maintaining the temperature of the walls of the apparatus at the temperature sufficient to enable cleaning of the walls during the cleaning of the chamber. Carlson et al also teach controlling of the airflow by changing speed of the blower or by other means. See entire document, especially Figures and columns 2-6.

Having the combined teachings of the PA and Carlson et al it would have been obvious to an ordinary artisan at the time the invention was made to regulate the temperature of the walls of the bell jar apparatus of the PA during the cleaning by controlling airflow in the cooling plenum at the range sufficient to enable cleaning of the walls with reasonable expectation of success because Carlson et al teach such to solve the problem of wall cleaning.

As to the limitation requiring measuring temperature of airflow: The cited documents are silent regarding whether or not the conventional bell jar apparatus is equipped with a device to measure a temperature of the airflow in the plenum. However, since this flow is used to control an important parameters during deposition and cleaning processes, it would have been obvious to an ordinary artisan at the time the

invention was made to measure the temperature of the airflow in the plenum in the modified method of the PA to enable a precise control of the method.

As to the requirement of dependent claims to include purging of the bell jar and measuring transparency of the bell jar:

It would have been obvious to an ordinary artisan at the time the invention was made that the cleaning gas is removed and replaced by the processing gas to enable the process of the deposition. It would also have been obvious to an ordinary artisan at the time the invention was made to conduct cleaning of the walls until the operator could not visually determine the presence of haze contamination on the chamber walls in order to ensure that the contamination is removed.

Conclusion

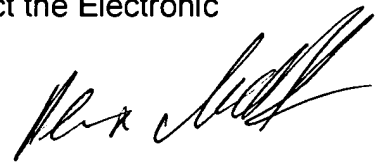
4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patents 5,746,834; 5,373,806 and 5,908,504 are cited to show the state of the prior art with respect to methods of operating bell jar deposition apparatuses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander Markoff
Primary Examiner
Art Unit 1746

AM

ALEXANDER MARKOFF
PRIMARY EXAMINER